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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/039,927	03/16/98	LESTER	H A-63098-1/RF

HM22/1121  
FLEHR HOHBACH TEST ALBRITTON & HERBERT  
FOUR EMBARCADERO CENTER  
SUITE 3400  
SAN FRANCISCO CA 94111

EXAMINER

PAK, M

ART UNIT	PAPER NUMBER
1646	18

DATE MAILED:

11/21/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<b>Office Action Summary</b>	Application No. 09/039,927	Applicant(s) Lester et al.
	Examiner Michael Pak	Group Art Unit 1646

Responsive to communication(s) filed on Sep 8, 2000

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

#### Disposition of Claims

Claim(s) 18-24 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 18-24 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

#### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been

received;

received in Application No. (Series Code/Serial Number) \_\_\_\_\_

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

**DETAILED ACTION**

1. The amendment filed 17 August 2000 (Paper No.15) has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Applicant's arguments filed 17 August 2000 (Paper No.15), have been fully considered but they are not found persuasive.

**Terminal Disclaimer**

4. The terminal disclaimer filed on 8 September 2000 (Paper No. 16) disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S Patent 5,744,324 has been reviewed and is accepted. The terminal disclaimer has been recorded.

**Specification**

5. The disclosure is objected to because of the following informalities. Appropriate correction is required.

Page 4, Brief Description of the Drawings, figure legends do not agree with the figures 1-4 labels. For example figure 1a is referred to in the legend on page 4 as Figure 1 and then a-c which is not correct because the figure is labeled figure 1a.

Furthermore, figure 2a is referred to in the legend on page 4 as Figure 2 and then a-d which is not correct because the figure is labeled figure 2a and within figure 2a there are panels a-d. The relationship between the figure legend in the Brief Description of the Drawings on pages 4-5 should be carefully checked to see that it agrees with the labeling of the figures 1-4.

Applicants argue that amendment will be made of the Brief description when the formal drawings are submitted. Until such time the objection will be maintained.

#### **Double Patenting**

6. Claims 18-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 5,734,021 in view of Yatani et al.((12); Science, 1987).

The reasons for the rejection has been set forth in the previous office action.

Applicants argue that Yatani et al. do not teach the specific inhibition of the channel. However, the claims are not limited to the specific inhibition, but also encompass indirect inhibition. Claims 1-19 of U.S. Patent No.5,734,021 disclose the inward rectifier potassium channels, KGA, encoded by low stringency hybridization with SEQ ID NO:1. Yatani et al. teaches the inhibition of Ach(Ik) potassium channel with PTX and NAD. It would have been obvious to one of ordinary skill in the art to

modify the claims of '021 to incorporate the method of Yatani et al. to inhibit the channel currents because of the need to characterize the channels as inward rectifiers of specific characteristics.

7. Claims 21-24 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 5,734,021 in view of Duprat et al.((22); BBRC, 1995) and Yatani et al.((12); Science, 1987).

Claims 1-19 of U.S. Patent No.5,734,021 disclose the inward rectifier potassium channels, KGA, encoded by low stringency hybridization with SEQ ID NO:1.

Yatani et al. teaches the inhibition of Ach(I<sub>K</sub>) potassium channel with PTX and NAD.

Duprat et al. disclose the expression of GIRK1 and GIRK2 alone and in combination by injecting cRNAs into Xenopus oocyte (pages 659-661, figure 1-4). Duprat disclose that expression of GIRK3 and GIRK2 combination does not express any currents (page 660, middle of the upper paragraph), while GIRK2 alone or in combination with GIRK1 expresses an enhanced expression of channels(page 659, figure 1). Duprat disclose that expression of GIRK3 and GIRK1 combination does not express any currents (page 660, middle of the upper paragraph), while GIRK1 alone or in combination with GIRK2 expresses an enhanced expression of

channels (page 659, figure 1). Duprat et al. also disclose the decrease of inward rectifier current with Mg++ and ATP (pages 660-661, figures 2 and 4). Duprat et al. disclose the GIRK1, GIRK2, and GIRK3 nucleic acid cloned in the vector (page 658, methods and material section).

It would have been obvious to one of ordinary skill in the art to modify the claims of '021 to incorporate the method of Duprat et al. to isolated the nucleic acid form the given protein and nucleic acid sequence and assay to inhibit the channel currents because of the need to characterize the channels as inward rectifiers of specific characteristics.

**Priority**

8. Claim 18 is non-obviously broader than claims in the parent application 08/066,371 and thus are not entitled to benefit of the earlier filing date.

Applicants argue that priority is dependent on the disclosure of the parent application and not the claims. The current application concept of heteromultimer was not disclosed in the specification of parent application 08/066,371.

Applicants argue that unless the filing date of the earlier application is needed to overcome a reference, there is no need for such a determination to be made. However, it is up to the applicant to decide whether the priority is needed to overcome the rejection.

**Claim Rejections - 35 USC § 102**

9. Claims 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Yatani et al.((12); Science, 1987) for the reasons set forth in the last office action.

Applicants argue that the inhibition is not direct and specific but the claims do not exclude indirect inhibition.

10. Claims 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Karschin et al.((8); PNAS, 1991).

Applicants argue that the inhibition is not direct and specific but the claims do not exclude indirect inhibition.

11. Claims 18-24 are rejected under 35 U.S.C. 102(a) as being anticipated by Duprat et al.((22); BBRC, 1995).

Applicants argue that Mg nor ATP were described as inhibitors. However, since the Mg and ATP blocks or inhibits the potassium current, it is an inhibitor.

12. No claims are allowed.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is

not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pak, whose telephone number is (703) 305-7038. The examiner can normally be reached on Monday through Friday from 5:50 AM to 2:20 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, can be reached on (703) 308-6564.

Official papers filed by fax should be directed to (703) 308-4242. Faxed draft or informal communications with the examiner should be directed to (703) 308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

*Michael D. Pak*  
Michael Pak  
Primary Patent Examiner  
Art Unit 1646  
17 November 2000